

Caelospermum dasylobum (Rubiaceae), a new species from north-eastern Queensland

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Summary

Halford, D.A. & Ford, A.J. (2004). *Caelospermum dasylobum* (Rubiaceae), a new species from north-eastern Queensland. *Austrobaileya* 6 (4) 911–915. *Caelospermum dasylobum* Halford & A.J.Ford is described, illustrated and diagnosed against related species. Notes on its habitat and distribution are provided.

Key words: *Caelospermum*, taxonomy, Australian flora, *Caelospermum dasylobum*, Rubiaceae

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Introduction

Caelospermum Bl. is a genus of mostly lianas distributed throughout South-east Asia, Malesia, Melanesia, New Guinea and Australia. In the most recent revision of the genus, Johannson (1988) recognised a total of seven species, with a single species *C. paniculatum* F.Muell. present in Australia. Johannson recognised two varieties of *C. paniculatum*: *C. paniculatum* var. *paniculatum* distributed from the Claudie River, north-eastern Queensland southwards to the Clarence River, north-eastern New South Wales and *C. paniculatum* var. *syncarpum* J.T.Johannson occurring on the Atherton Tableland, north-eastern Queensland. A second Australian species of *Caelospermum*, from the Mossman–Julatten area, is described here.

Methods

The study is based upon the examination of herbarium material from BRI and QRS and augmented by field observations made by the second author. The Herbarium acronyms follow Holmgren *et al.* (1990). All specimens cited have been seen by one or both authors.

Measurements of floral parts are based on material preserved in 70% ethanol. In this paper the term “compound syncarpous drupe” is used to describe the compound fruit of the species. The term “drupe” is used here as defined by Clifford and Dettmann (2001).

Taxonomy

***Caelospermum dasylobum* Halford & A.J.Ford, sp. nov.** in clavi de Johannson (1988) advenit ad *C. salomonense* a quo corollae lobis dense pubescentibus et brevioribus (6–7 mm longis vice 9–11 mm longis), antheris brevioribus (3–3.5 mm longis vice 5.6–7.4 mm longis), ramulis inflorescentiae glabris (hispidulosus in *C. salomonensi*) et fructibus ubi maturis plus minusve flavo-aurantiacis usque flavo-brunneis (rubris in *C. salomonensi*) differt. *Caelospermum dasylobum* in fructibus drupam compositum syncarpum formentibus *C. paniculato* var. *syncarpo* similis autem ramulis inflorescentiae glabris (hispidulosus in *C. paniculato* var. *syncarpo*) fructibus ubi maturis plus minusve flavo-aurantiacis usque flavo-brunneis (rubris usque purpureis in *C. paniculato* var. *syncarpo*), lobis corollae dense pubescentibus (glabris in *C. paniculato* var. *syncarpo*) et tubo corollae interdum longiore (5–7 mm longis vice 3–6 mm longis in *C. paniculato* var. *syncarpo*) differt. **Typus:** Queensland. COOK DISTRICT: Chapman road, Kingfisher Park, Julatten, Dec 2002, A. Ford AF3785, J. Holmes & D. McJannet (holo: BRI; iso: K, L, MEL, MO, NSW, QRS, distribuendi).

Twining vine or scandent shrub with long arching stems. Stems terete, bark corky and fissured to tessellated, to 4cm diameter. Wood

and roots yellow-orange. Branchlets \pm terete, rarely angled, glabrous, longitudinally striated and becoming fissured with age. Leaves petiolate, opposite; stipules interpetiolar, sheathing, c. 1.5 mm long, produced into a narrow triangular lobe, glabrous, fragmenting as node thickens; petioles 5–12 mm long; laminae chartaceous when young becoming hard and stiff with age, narrowly elliptic or narrowly ovate, 6.5–13 cm long, 3.5–6.5 cm wide; adaxial and abaxial surfaces glabrous; venation brochidodromous with 5–12 lateral veins per side of midvein, slightly raised on adaxial surface, prominent on abaxial surface; base rounded to cuneate-obtuse; margins entire; apex acute or acuminate; pit domatia with a ring of hairs around the orifice present on most leaves in lateral vein axils on abaxial surface. Flowers fragrant, 4(5)-merous, bisexual, sessile, in congested capitula, joined at least by the base of the gynoeceum. Capitula pedunculate, 4–6 mm across (excluding corollas), 3 or 4 (rarely 6)-flowered with colleters absent between flowers, in terminal paniculate umbel-like dichasial cymes or rarely axillary dichasial cymes, with peduncles 0.5–6 mm long, glabrous, terete. Primary axis of inflorescence 10–30 mm long, glabrous, terete; bracts c. 1 mm long, glabrous; lower bracts broadly triangular or rarely foliaceous; upper bracts narrowly triangular. Calyx tube (including hypanthium) green, 1.5–2 mm long, 1.7–2 mm across, abaxial surface glabrous, with a single bristle-like bracteole (?) c. 0.8 mm long occasionally present towards the base of the gynoeceum; adaxial surface glabrous, with a ring of minute colleters at base; apex truncate, undulate or irregularly and shallowly toothed. Corolla valvate, deciduous, white and pale green turning yellow with age, glabrous on abaxial surface; tube 5–7 mm long, \pm cylindrical, slightly widened at the mouth, fenestrated by short longitudinal splits in lower third of tube, glabrous and papillose on adaxial surface in proximal half but hairy and smooth distally; hairs simple, up to 0.5 mm long, white, spreading; lobes spreading and strongly recurved distally at anthesis, narrowly ovate, 6–7 mm long, 2–2.5 mm wide, acute and \pm cucullate at apex, densely hairy adaxially; hairs as for corolla tube. Stamens exerted; filaments 1.6–4.5 mm long, inserted at the sinuses of the corolla lobes; anthers dorsifixed, linear-oblong,

3–3.5 mm long, glabrous, dehiscing laterally through longitudinal slits. Disc entire, flat, c. 0.5 mm high, glabrous. Ovary 2-celled, biovulate; style 5.5–8 mm long, exerted, glabrous; stigma bifid, with spreading lobes 2.5–4 mm long, adaxial surface and margin papillose, abaxial surface glabrous. Fruit a compound syncarpous drupe, subglobose or irregularly lobate, 20–25 mm long and 15–30 mm across, \pm yellow-orange to yellow-brown when ripe, glabrous, persistent calyx tubes not prominent on surface; pericarp firm, shell-like; mesocarp fleshy, containing several pyrenes. Pyrenes oblong in outline, 8–11 mm long, 5–6 mm wide, 2–3 mm thick, 1-seeded; endocarp cartilaginous, pale brown, rugose, with basal marginal groove. Seed 7–9 mm long, 3–4 mm wide, c. 1 mm thick; testa membranous, dark brown; endosperm corneous, white; embryo 3.7–4.3 mm long, straight; cotyledons 1.6–2 mm long, 0.9–1.1 mm wide, thin, c. twice as broad as the radicle; radicle 1.9–2.3 mm long, 0.5–0.6 mm wide. **Fig. 1.**

Additional specimens examined: Queensland. COOK DISTRICT. Kingfisher Park, Julatten, Oct 2002, *Cooper & Cooper* WWC1791 (BRI); SFR 72, Pinnacle Mountain, Aug 1983, *Dansie* AFO5283 (QRS); SFR 1229, Black Mountain road, near Rifle Creek bridge, Aug 2003, *Ford* 4148 (BRI, QRS); Mt Perseverance road, near Nissen Creek via Julatten, Feb 2003, *Ford* AF3840 & *Holmes* (BRI); SFR 143, Little Mossman logging area, Jul 1980, *Gray* 20141 V (QRS); ditto, Aug 1981, *Gray* 20193 V (QRS); c. 1.5 km N of Julatten, adjacent to Kingfisher Park Bird Lodge, Sep 2002, *Halford* Q7385 & *Ford* (BRI); Kingfisher Park, Julatten, Oct 1998, *Holmes* 69 (QRS); SFR 1229, Danbulan, Feb 1993, *Hyland* 14638 (QRS); ditto, Aug 1992, *Hyland* 14506 (QRS); c. 1 km S of "The Pinnacle" & c. 12 km SSE of Mossman, Sep 1978, *Moriarty* 2461 (QRS); bank of Mossman River, near Mair [Marr] Creek, Apr 1998, *Sankowsky* 1625 (QRS); Rumula Creek, Oct 1939, *Twort* per *Sparvell* NQNC6570/71 (QRS).

Distribution and habitat: *Caelospermum dasylobum* is endemic to north-eastern Queensland, where it is currently known from the Julatten–Mossman district (**Map 1**). It is recorded as growing in mesophyll or notophyll rainforest on clay soils derived from mudstone. Common canopy trees include: *Cardwellia sublimis* F.Muell., *Darlingia darlingiana* (F.Muell.) L.A.S. Johnson, *Elaeocarpus grandis* F.Muell., *Castanospora alphanthii* (F.Muell.) F.Muell., *Castanospermum australe* A.Cunn. & Fraser ex Hook., *Carnarvon araliifolia* F.Muell. var. *araliifolia*, *Myristica globosa* subsp. *muelleri* (Warb.) W.J.deWilde and

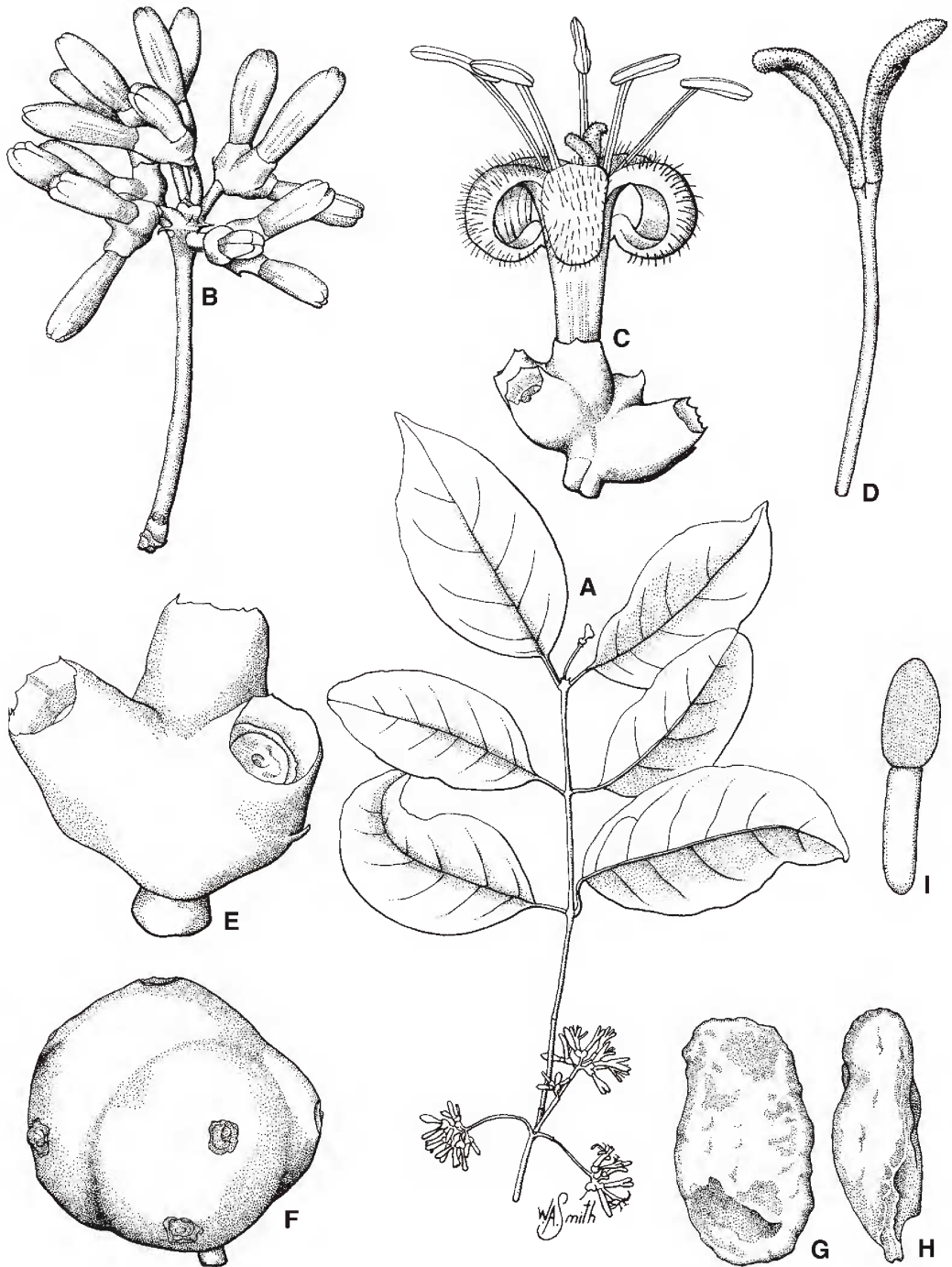


Fig. 1. *Caelospermum dasylobum*. A. branchlet with flowers $\times 0.4$. B. part of inflorescence $\times 2$. C. flower $\times 4$. D. style $\times 8$. E. fused ovaries with bracteole $\times 8$. F. compound fruit $\times 1.5$. G. adaxial view of pyrene $\times 6$. H. lateral view of pyrene $\times 6$. I. embryo $\times 8$. A–E from Ford *et al.* AF3785 (BRI); F from Cooper & Cooper WWC1791 (BRI); G–I from Halford Q7385 & Ford (BRI). Del. W. Smith.

Alstonia scholaris (L.) R.Br. *Polyscias australiana* (F.Muell.) Philipson is a conspicuous sub-canopy species. At the type locality the rainforest is very fragmented from clearing and agriculture. Very small fragments exist with little or no canopy structure. In this case *C. dasylobum* occurs with *Guioa acutifolia* Radlk., *Cryptocarya triplinervis* R.Br. and *Rhamnella vitiensis* (Benth.) A.C.Sm. Altitudinal range is 20–600m, with most collections recorded at 400–450m.

Phenology: Flowers have been recorded in December, January and February whilst mature fruits have been recorded in September and October.

Affinities: *Caelospermum dasylobum* will key to *C. salomonense* in Johansson's (1988) key. It can be distinguished from *C. salomonense* by its densely hairy and shorter corolla lobes (6–7 mm long compared to 9–11 mm long for *C. salomonense*), shorter anthers (3–3.5 mm long compared to 5.6–7.4 mm long for *C. salomonense*), glabrous inflorescence branches (hispidulous for *C. salomonense*) and \pm yellow-orange to yellow-brown fruit when ripe (red for *C. salomonense*).

Caelospermum dasylobum is similar to *C. paniculatum* var. *syncarpum* in its fruit that form a compound syncarpous drupe. However, it differs in having glabrous inflorescence branches (hispidulous for *C. paniculatum* var. *syncarpum*), \pm yellow-orange to yellow-brown fruit when ripe (red to purple for *C. paniculatum* var. *syncarpum*), densely hairy corolla lobes (glabrous for *C. paniculatum* var. *syncarpum*) and generally longer corolla tube (5–7 mm long compared to 3–6 mm long for *C. paniculatum* var. *syncarpum*).

Conservation status: *Caelospermum dasylobum* has been collected within the World Heritage Area of the Wet Tropics bioregion in the vicinity of Black Mountain (Harris Peak), via Kuranda and also from the Julatten area

(ex-SFR 143 and ex-SFR 72). However, it has not yet been recorded in a National Park area. No conservation status is recommended at this time, although a thorough search of adjacent lands might elucidate more records of this seldom seen species.

Notes: Leaves on strictly juvenile plants or seedlings in the understory have very narrow leaves compared to adult leaves. This vegetative feature is common within the genus of *Morinda*. Mature fruit of *C. dasylobum* lack the distinctive and pungent smell of rotting cheese, which is a well known attribute of *Morinda* fruit.

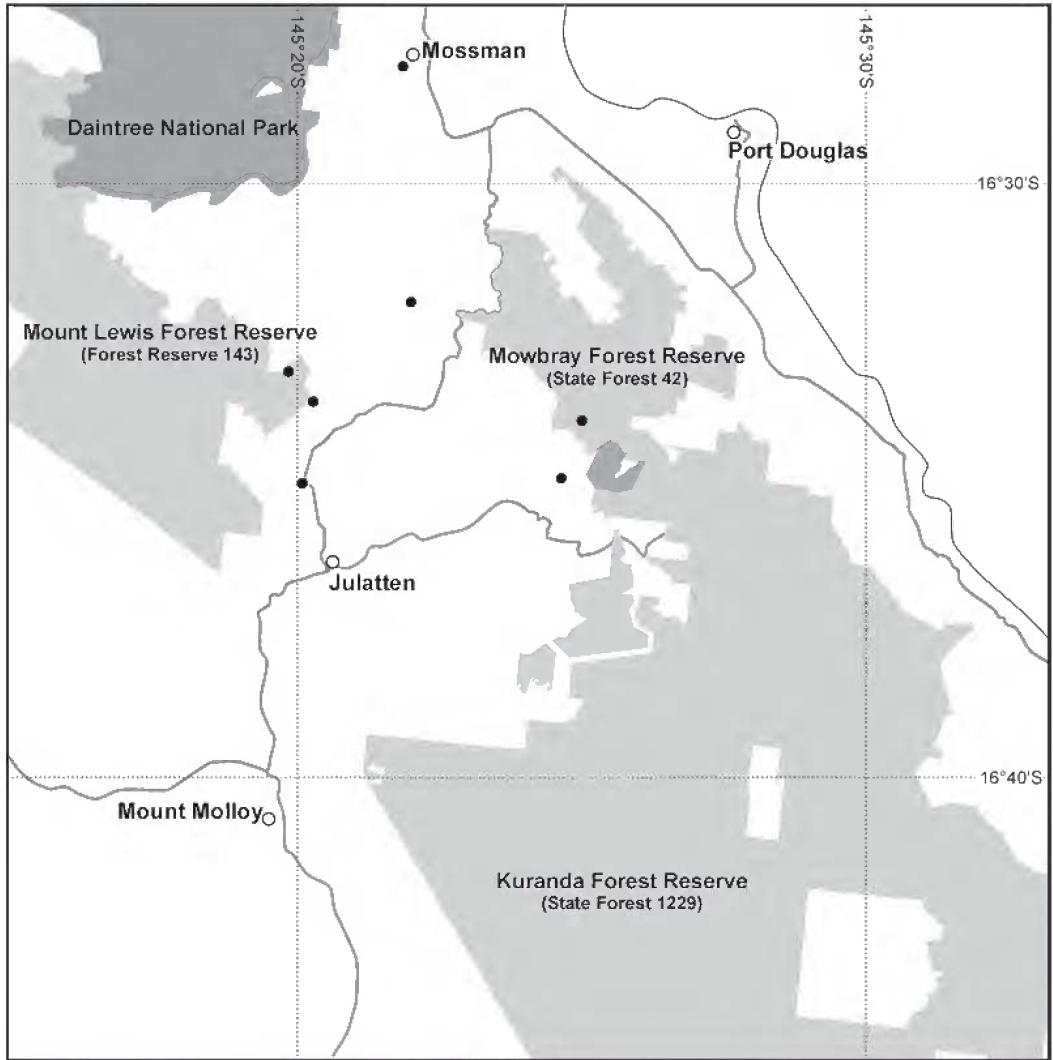
Etymology: The specific epithet is derived from the Greek *dasys* - very hairy, and *lobos* - lobe, and refers to the hairy corolla lobes of this species.

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Map 1. Distribution of *Caelospermum dasylobum* ● .